

HE  
336  
.U8  
U85  
1973

# **UTILITY ACCOMMODATION POLICY**

of the

## **IOWA STATE HIGHWAY COMMISSION**

**ADOPTED MAY 1970**

**REVISED FEBRUARY 1973**

## TABLE OF CONTENTS

	<u>PAGE</u>
Statement of Policy	4
Section 1 - Definitions	5
" 2 - Applicability of Standards	10
" 3 - Conditions for Occupancy of Right of Way	11
" 4 - Scenic Enhancement	14
" 5 - Liability	14
" 6 - Responsibility for Construction	15
" 7 - Construction Methods & Procedures	16
" 8 - Traffic Protection	17
" 9 - Applications and Permits	18
" 10 - Non-Compliance	19
" 11 - Transverse Utility Facility Occupancy	19
" 12 - Longitudinal Utility Facility Occupancy	22
" 13 - Vertical Overhead Clearance	23
" 14 - Underground Depth Requirements	23
" 15 - Location of Appurtenances	24
" 16 - Encasement	24
" 17 - Utility Facility Attachments to Bridges	26
" 18 - Privately Owned Utility Facilities	29

The following information is provided as an aid in determining the applicable sections for the following types of occupancy.

1. Power and Communication Lines

A. Overhead

- (1) Transverse, Sections 1 through 11 and 13
- (2) Longitudinal, Sections 1 through 10, 12 and 13
- (3) Bridge Attachments, Sections 1 through 10 and 17

B. Underground

- (1) Transverse, Sections 1 through 11, 14, 15 and 16
- (2) Longitudinal, Sections 1 through 10, 12, 14, 15 and 16
- (3) Bridge Attachments, Sections 1 through 10 and 17

2. Pipelines

A. Underground

- (1) Transverse, Sections 1 through 11, 14, 15 and 16
- (2) Longitudinal, Sections 1 through 10, 12, 14, 15 and 16
- (3) Bridge Attachments, Sections 1 through 10 and 17

UTILITY ACCOMMODATION POLICY

of the

IOWA STATE HIGHWAY COMMISSION

WHEREAS, proper regulation of the location, design, and methods for installation, maintenance and adjustment of private and public utility facilities on Iowa Primary Road System is necessary for safety, public service and orderly development, and

WHEREAS, it is the desire of the Commission that such regulations be established and uniformly administered in a manner which will be in the best interest of the Primary and Interstate Road System and the public use thereof, with due consideration given to the public service afforded by adequate and economical utility installations, and

WHEREAS, Section 306A of the Code of Iowa states that the Iowa State Highway Commission has authority to plan, regulate and control the use of all highways which have been designated or established as primary road controlled access facilities, and

WHEREAS, the Iowa State Highway Commission has designated all primary highways, exclusive of the Secondary Roads System, the Institutional Road System, and the State Park System as controlled access highways, and

WHEREAS, as an exercise of the authority granted by Section 306A of the Code of Iowa, the Iowa State Highway Commission desires to establish uniform regulations for allowing utility facilities to occupy primary highway right of way,

NOW, THEREFORE, BE IT ORDERED that the attached Utility Accommodation Policy of the Iowa State Highway Commission be adopted.

STATEMENT OF POLICY

This policy covers initial placement, adjustment, relocation and replacement of utility facilities in, on, above or below all highway right of way over which the Iowa State Highway Commission exercises control of access. It embodies the basic specifications and standards needed to insure the safety of the highway user and the integrity of the highway.

The Iowa State Highway Commission recognizes that any policy which is adopted may create some unforeseen burdens, hardships or problems, and for that reason the Iowa State Highway Commission reserves the right to vary the provisions of this policy, consistent and harmoniously, however, with the general purposes and intent of the policy where in the exercise of sound and reasonable judgment, literal application of such policy would defeat the objectives hereinabove set forth.

## SECTION 1. DEFINITIONS

### Agreement

A contract between the Iowa State Highway Commission and a utility company relative to utility facility relocation and reimbursement.

### Appurtenances

Utility facility related features such as vents, drains, manholes, markers, etc.

### Arterial Highway

A general term denoting a highway primarily for through traffic, usually on a continuous route.

### Backfill

Replacement of soil around and over a pipe.

### Bury

Depth of top of pipe below grade of roadway or ditch.

### Cable

An insulated conductor or combination of insulated conductors.

### Carrier

Pipe directly enclosing a transmitted fluid (liquid or gas).

### Casing

A larger pipe enclosing a carrier.

### Clear Roadside Policy

The policy employed by a highway authority to increase safety, improve traffic operation, and enhance the appearance of highways by designing, constructing, and maintaining highway roadsides as wide, flat, and rounded as practical and as free as practical from physical obstructions above the ground such as trees, drainage structures, massive sign supports, utility poles, and other ground mounted obstructions.

### Commission or Highway Commission

The Iowa State Highway Commission as constituted under the laws of Iowa.

### Communication Line

A circuit for telephone, telegraph, alarm systems, television transmission, or traffic control purposes.

Conduit or Duct

An enclosed tubular runway for protecting wires or cables.

Control of Access

The condition where the right of owners or occupants of abutting land or other persons to access, light, air, or view in connection with a highway is fully or partially controlled by public authority.

Full Control of Access

Means that the authority to control access is exercised to give preference to through traffic by providing access connections with selected public roads only, by prohibiting crossings at grade or direct private driveway connections.

Partial Control of Access

Means that the authority to control access is exercised to give preference to through traffic to a degree that, in addition to access connections with selected public roads, there may be some crossings at grade and some private driveway connections.

Direct Burial

Installing a utility facility underground without encasement.

Drain

Appurtenance to discharge liquid contaminants from casings.

Encasement

Structural element surrounding a pipe.

Engineer

The Chief Engineer of the Highway Commission acting directly or through his duly authorized representative, such representative acting within the scope of the particular duties assigned to him, or of the authority given him.

Expressway

A divided arterial highway for through traffic with full or partial control of access and generally with grade separations at major intersections.

Freeway

An expressway with full control of access.

Frontage Road

A local street or road auxiliary to and located on the side of an arterial highway for service to abutting property and adjacent areas and for control of access.

Gallery

An underpass for two or more pipelines.

Grade Separation

A structure which carries an intersecting highway over or under another highway or railroad.

Highway, Street or Road

A general term denoting a public way for purposes of vehicular travel, including the entire area within the right-of-way.

Interchange

A system of interconnecting highways in conjunction with a grade separation or separations providing for the interchange of traffic between two or more intersecting roadways.

Manhole

An opening in an underground system which workmen or others may enter for the purpose of making installations, inspections, repairs, connections, and tests.

Median

The portion of a divided highway separating the traveled ways for traffic in opposite directions.

Natural Gas Distribution System

Natural gas mains within municipalities together with mains extending out of municipalities to serve patrons and those mains extending from transmission or feeder mains into municipalities provided such lines are plainly and adequately marked as to location. All lines referred to within this definition shall be constructed to Class 4 standards as defined by the U.S. Department of Transportation, Transportation of Natural Gas and Other Gas by Pipeline; Minimum Safety Standards.

Overfill

Backfill above a pipe.

Pavement

That portion of the roadway used for the movement of vehicles, exclusive of shoulders.



Pavement Structure

The combination of subbase, base course, and surface course placed on a subgrade to support the traffic load and distribute it to the roadbed.

Permit

Use and occupancy agreement.

Pipe

A tubular product made as a production item for sale as such. Cylinders formed from plate in the course of the fabrication of auxiliary equipment are not pipe as defined here.

Pipeline

A carrier system used to transport liquids or gases.

Planned Access Highway

Any highway over which the Highway Commission exercises jurisdiction, other than a freeway, including the highway intersecting a freeway at any interchange or grade separation except a freeway to freeway interchange.

Power Lines

Overhead electrical conductors with supporting poles or structures and underground electrical conductors or cables with the conduit in which they are contained.

Pressure

Relative internal pressure in psig (pounds per square inch gauge).

Private Utility Facility

Any pole, poleline, pipe, pipeline, tileline, sewer line, conduit, conveyor, cable, aqueduct, or any other structure or appurtenance thereof, which is privately owned and dedicated to private use.

Public Utility Facility

Any pole, poleline, pipe, pipeline, pipeline company facility, conduit, cable, aqueduct, or any other structure or appurtenance thereof whether publicly or privately owned which is used to provide a service to the public or which is directly or indirectly dedicated to public use.

Relocation

The removal, rearrangement, reinstallation, protection, or adjustment of a utility facility.

Right-of-Way

A general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to transportation purposes. For the purposes of this policy, the right-of-way line for a freeway is the access control line.

Roadway

The portion of a highway, including shoulders, for vehicular use. A divided highway has two or more roadways.

Rural Type Roadways

Any roadway other than an urban type roadway.

Safety Rest Area

A roadside area with parking facilities separated from the roadway provided for motorists to stop and rest for short periods. It may include drinking water, toilets, tables and benches, telephones, information, and other facilities for travelers.

Scenic Overlook

A roadside area provided for motorists to stop their vehicles beyond the shoulders, primarily for viewing the scenery in safety.

Service Connection

Any water, gas, power, or communication line which extends from the main or primary utility facility into an adjacent property and which is used to serve that property.

Shoulder

The portion of the roadway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use, and for the lateral support of the base and surface courses.

Sidefill

Backfill alongside a pipe.

Slope Limit or Toe of Slope

The intersection of the fore slope, and natural ground or ditch bottom.

State

State of Iowa.

Traveled Way

The portion of the roadway for the movement of vehicles, exclusive of shoulders and auxiliary lanes.

Trenched

Installed in a narrow open excavation.

Untrenched

Installed without breaking ground or pavement surface, such as by jacking or boring.

Urban Type Roadway

A roadway which has as its outside extremities a curb and gutter section.

Use and Occupancy Agreement

The document by which the highway authority regulates and/or gives approval of the use and occupancy of highway rights-of-way by utility facilities.

Utility Company

Any owner or operator of a public utility facility.

Utility Facility

Either a public utility facility or a private utility facility.

Vent

Appurtenance to discharge gaseous contaminants from casings.

SECTION 2. APPLICABILITY OF STANDARDS

2-1 This policy shall become effective on the date of issuance and shall supersede all previously published Iowa State Highway Commission standards and policies concerning the accommodation of utility facilities.

2-2 It is the intent of this policy to effectuate and incorporate all of the provisions of Federal Highway Administration PPM 30-4.1 and the AASHO policy on The Accommodation of Utilities on Freeway Rights of Way, which are not in conflict with the provisions of this policy.

2-3 Where it is clear that the application of a standard established herein will in any particular case be unnecessarily stringent, consideration may be given to more appropriate requirements for the particular case. Where a variation is proposed Commission approval and, where required, Federal Highway Administration concurrence must be obtained.

2-4 The owner of the utility facility shall assure itself and be responsible that the proposed utility projects meet the applicable requirements of this policy, applicable local, municipal, and county codes, applicable franchise rules and regulations and all applicable laws, regulations and directives promulgated by the Iowa State Commerce Commission, Utilities Division, regulations of the Iowa State Department of Health or any other laws, regulations or standards applicable. These requirements shall include, but not be necessarily limited to, the following:

- A. Electric power and communication facilities should conform with the currently applicable National Electrical Safety Code.
- B. Water lines should conform with the currently applicable specifications of the American Water Works Association.
- C. Pressure pipelines should conform with the currently applicable sections of ANSI Standard Code for Pressure Piping of the American National Standards Institute and applicable industry codes, including:
  - 1. Power Piping, ANSI B31.1.0
  - 2. Petroleum Refinery Piping, ANSI B31.3
  - 3. Liquid Petroleum Transportation Piping Systems, ANSI B31.4
  - 4. Gas Transmission and Distribution Piping Systems, ANSI B31.8
  - 5. Department of Transportation, Transportation of Natural Gas and Other Gas by Pipeline; Minimum Safety Standards.
- D. Liquid petroleum pipelines should conform with the currently applicable recommended practice of the American Petroleum Institute for pipeline crossings under railroads and highways.
- E. Section 306A of the Code of Iowa.
- F. The applicable policy, code, rule, regulation, law or whatever, which provides the highest degree of protection to the highway and to the public shall supersede all others.

### SECTION 3. CONDITIONS FOR OCCUPANCY OF RIGHT OF WAY

3-1 Design, Construction and Maintenance Requirements - All utility facilities permitted within the right of way under the jurisdiction of the Iowa State Highway Commission shall be designed, constructed, and maintained in accordance with the following rules:

- A. The utility company shall be responsible for the design of the utility facility to be installed within the highway rights-of-way or attached to a highway structure. The Highway Commission is responsible for review and approval of the utility's proposal with respect to the location of the utility facilities to be installed and the manner of attachment. This includes the measures to be taken to preserve the safe and free flow of traffic, structural integrity of the roadway or highway structures, ease of highway maintenance, appearance of the highway, and the integrity of the utility facility.
- B. There shall be a minimum disruption of traffic; and other hazards to the highway user are to be minimized.
- C. No utility facility shall be constructed so as to adversely affect the design, construction, operation, maintenance or stability of a highway or any proposed or existing highway facility.
- D. A planted or landscaped area which is disturbed shall be restored as nearly as possible to its original condition. Specific authorization must be obtained from the engineer prior to trimming of trees or spraying within the right of way.
- E. Ground-mounted utility facilities shall be of a design compatible with the visual quality of the specific highway section being traversed. (See Section 4 of this policy.)
- F. Underground transverse crossings of existing roadways shall be made by untrenched construction whenever possible. Any variance must be specifically authorized by the engineer and noted in the permit.

On freeways, jacking pits shall not be in the normal median or closer than 30' to the roadway edge, or no closer than the toe of foreslope, whichever is greater.

On planned access highways, rural type, jacking pits shall be no closer than the toe of foreslope or 30' from the edge of the pavement, whichever is less; however, jacking pits allowed within the foreslope shall be specifically authorized by the engineer and noted in the permit.

On urban type planned access highways, jacking pits shall generally be no closer than 2' back of curb.

- G. Owners of utility facilities shall give the Engineer at least 48 hours notice, in writing, of intention to start construction within the highway right of way with the exception of service connections.

- H. Owners of utility facilities shall at all times give the Engineer notice of intention to perform predictable routine maintenance within the highway right-of-way except service connections. (Telephone notification is sufficient.)
- I. The utility company shall, for maintenance other than predictable routine, notify the Engineer as soon as possible of their activity on the highway right-of-way.
- J. All utility installations on, over, or under highway rights of way and attachments to highway structures shall be of durable materials designed for long service life expectancy and relatively free from routine servicing and maintenance.

### 3-2 Access Requirements

- A. Access for servicing utility facilities located within the freeway right of way will, except in time of disaster emergency, be limited to:
  - 1. Frontage roads where provided.
  - 2. Intersecting, adjacent or nearby public roads and streets.
  - 3. Trails or auxiliary roads adjacent to or near the highway right-of-way which are connected to intersecting roads only.
  - 4. Private property.
- B. Access from the right-of-way will be permitted on planned access highways, subject to any limitations imposed by the permit, for maintenance of those lines occupying highway right-of-way.

### 3-3 Clear Roadside Area

- A. On freeways open to traffic no personnel or equipment will be permitted within 30' of the roadway or in the normal median during utility facility construction and maintenance operations, except for stringing of overhead conductors. In the interest of safety temporary poles in the median may be allowed during cable stringing operations, if considered advisable by the Engineer.
- B. On planned access highways, rural type, no permanent above ground obstructions will be permitted within 30' of the pavement or within the roadway slope limits, whichever is greater; right of way width permitting.

#### SECTION 4. SCENIC ENHANCEMENT

The type and size of utility facilities and the manner and extent to which they are permitted along or within highway rights of way can materially alter the scenic quality, appearance, and view of highway roadsides and adjacent areas. For these reasons additional controls are applicable in certain areas that have been acquired or set aside for their scenic quality. Such areas include scenic strips, overlooks, rest areas, recreation areas, the rights of way of highways adjacent thereto, and the rights of way sections of highways which pass through public parks and historic sites.

New underground utility installations may be permitted within such land where they do not require extensive removal or alteration of trees or other natural features visible to the highway user or do not impair the visual quality of the lands being traversed.

New aerial installations shall be avoided at such locations where there is a feasible and prudent alternative to the use of such lands by the aerial facility. Where this is not the case, they may be considered by the engineer only where:

1. Other locations are unusually difficult and unreasonably costly, or are more undesirable from the standpoint of visual quality.
2. Undergrounding is not technically feasible or is unreasonably costly.
3. The proposed installation can be made at a location and will employ suitable designs and materials which give adequate attention to the visual qualities of the area being transversed.

#### SECTION 5. LIABILITY

5-1 Where a relocation is to be made by the owner of a utility facility, the State shall not be liable for the cost of any change, alteration, or betterment of such utility except as may be provided by law.

5-2 Where the State is liable for costs of relocation required for highway work, the State will not pay for any betterment, increase in capacity of such related facilities, or other utility adjustments not required by highway construction. The State is entitled to receive credit for accrued depreciation on replaced facilities and the salvage value of any material or parts salvaged and retained or sold by the owner.

5-3 The owner of the utility facility shall indemnify and save harmless the Commission and the State from any and all causes of action, suits at law or in equity, or losses, damages, claims, or demands, and from any and all liability and expense of whatsoever nature for, on account of, or due to the acts or omissions of said owners' officers, members, agents, representatives, employees, contractors or assigns arising out of or in connection with its (or their) use or occupancy of the public highway under a permit or agreement.

#### SECTION 6. RESPONSIBILITY FOR CONSTRUCTION

6-1 Where utility facilities require relocation or protection because of highway improvements or construction, said relocation shall be performed by the owners in advance of the highway work whenever possible.

6-2 The Engineer shall have authority to decide any questions that arise in reference to the intent of the agreement or permit documents and the compliance therewith, relative to the condition of the highway.

6-3 The Engineer shall have the right to approve minor alterations in plans or character of the work, as related to the highway, which may be considered necessary or desirable during the progress of the work to complete satisfactorily the proposed construction. Such alterations shall not be considered as a waiver of any of the conditions of the agreement or permit nor invalidate any of the provisions thereof.

6-4 The Highway Commission may appoint inspectors to represent the Engineer in the inspection of all construction, as related to the highway, done within the right of way as part of the agreement or permit. The inspector(s) will not be permitted to modify in any way the provisions of the agreement or permit nor to delay the work by failing to inspect the work with reasonable promptness. An inspector is placed on the job to keep the Engineer informed as to the progress and manner in which it is being done; also to call the utility company's attention to any infringements of



the agreements or permit documents. The inspector will not act as a foreman nor perform other duties for the utility company or their contractor nor improperly interfere with the management of the work. He will not be authorized to approve or accept any portion of the work. The utility company or their contractor shall furnish the Engineer with every reasonable facility for ascertaining whether the work is being performed in accordance with the agreement or permit documents.

6-5 The utility owner of the facility and its contractor shall be responsible for the care and maintenance of their partially completed work on the right-of-way.

6-6 If, prior to final inspection, any repairs to the right of way are made necessary by the construction or maintenance of a utility facility, the owner shall upon notification immediately make the necessary repairs.

6-7 Before final inspection of the condition of the highway, the utility facility owner shall be responsible to remove all unused material or rubbish, resulting from the operation, from the site of the work, and leave the right of way in a clean, presentable condition.

6-8 Upon notification by the utility facility owner or its authorized representative that the work is completed, the Engineer shall make a prompt inspection of each item of work included in the agreement or permit related to the condition of the highway. If the work is found to be not in accordance with the agreement or permit documents, the utility company will be required to remedy the particular defects found. When the condition of the highway is found acceptable, the utility facility owner shall be so notified by the Engineer. All notices required in this paragraph shall be in writing.

## SECTION 7. CONSTRUCTION METHODS & PROCEDURES

### 7-1 General

- A. All work within the right of way shall be executed in a satisfactory and workman-like manner in accordance with good construction practices.
- B. All work shall be accomplished in such a manner as to cause a minimum of disturbance to any other contractor working in the right of way.

- C. In the performance of the agreement or permit the owner of the utility facility shall comply with all applicable federal, state and local laws governing safety, health and sanitation. The owner or its contractor shall furnish such additional safeguards, safety devices and protective equipment and shall take such actions as the Engineer may determine as being reasonably necessary to protect the life and health of the employees and the public.

#### 7-2 Backfilling Trenched Construction

- A. Where a carrier, pipe, conduit, duct, or cable is placed by trenched construction beneath a roadway or a driveway or within five feet of the edge of an existing or proposed pavement or base course, the overfill within the roadway shall be placed and compacted in no more than 6" lifts, from the top of the installation to the ground line. The backfill shall be of suitable material free from boulders, frozen clods or roots or excessive sod or other vegetation. The sidefill shall be carefully hand tamped under and around the installation in lifts not to exceed 4" in loose thickness.
- B. In areas inaccessible to tamping type rollers where compaction is required, a mechanical tamper of a size suitable for the work involved shall be used.
- C. Pneumatic tampers shall be operated at pressures no less than those recommended by the manufacturer.
- D. Compaction of backfill shall be to the satisfaction of the Engineer, and consistent with good highway construction methods.

7-3 Untrenched Construction Methods - When untrenched construction techniques are utilized the bore shall be as small as possible and in no case more than 4 inches larger than the facility or casing inserted. Grout or sand backfill is required for unused holes, for abandoned pipes over 3" in diameter. Backfill is also required for bore holes in excess of 2" oversize in diameter of the facility or casing inserted.

### SECTION 8. TRAFFIC PROTECTION

8-1 The utility facility owner or its contractor, shall carry on the construction or repair of the accommodated utility facility with serious regard to the safety of the public. Traffic protection shall be in accordance with the current Manual on Uniform Traffic Control Devices for Streets and Highways.

8-2 The Highway Commission will furnish all signs for work on Primary Roads and Freeways necessary to conduct traffic through the construction or repair area; however, the owner of the utility facility may elect to use its own signs conforming to the Manual on Uniform Traffic Control Devices for Streets and Highways. State owned signs will be made available to the utility facility owner or its contractor at one of the major Highway Commission maintenance installations. The owner of the utility facility is responsible for the original placing of the signs, removal after the work is done, and return of the State owned signs to the Highway Commission maintenance facility from which obtained. The utility facility owner or its contractor shall be responsible for correctly using signs as needed while work is in progress. Signs lost, damaged or destroyed shall be replaced by the owner of the utility facility.

8-3 Highway Commission personnel may supervise flagging operations where considered necessary by the Engineer.

#### SECTION 9. APPLICATIONS AND PERMITS

9-1 Where a utility facility, not covered by an agreement with the Iowa State Highway Commission, is to be placed, adjusted, improved, relocated or replaced across or along an existing highway or a highway under construction, the owner of the utility facility shall initiate arrangements by submitting a permit application for installation and maintenance of the utility facility to the appropriate Resident Maintenance Engineer, excepting service connections within incorporated municipalities.

A new permit is required at any time there is a change in the class of transmittent, an increase in the maximum design pressure shown on the permit, or any other physical change in the utility facility.

9-2 Each permit application shall contain a detailed written description of the proposed utility facility installation and its location, and shall include a detailed plat showing the physical placement of the utility with relation to highway features.

9-3 Applications for placing utility facilities, in, on, above or below the National System of Interstate and Defense Highways require the approval of the Federal Highway Administration. Applications for placing utility facilities which will discharge material into the Nation's waters must be accompanied by satisfactory evidence of compliance with all applicable requirements of Federal, State or local environmental protection agencies prior to their approval.

9-4 The owner of the utility facility or its contractor shall have a copy of the approved permit or agreement on the job site at all times for examination by highway officials.

9-5 The permit is subject to all the applicable rules and regulations of the Highway Commission, other State departments, and the Code of Iowa.

9-6 All utilities occupying or crossing the highway right of way shall be covered by a permit or agreement, except for service connections on planned access highways within incorporated municipalities.

9-7 A properly executed agreement shall be considered to be a permit.

9-8 Any permit required for a utility facility which is to be located within the corporation limits of a municipality will require the approval of both the municipality and the State.

#### SECTION 10. NON-COMPLIANCE

Non-compliance with any of the terms of the Highway Commission policy, permit, or agreement, may be considered cause for shut-down of operations or withholding of relocation reimbursement until compliance is assured, or revocation of the permit. The cost of the work caused to be performed by the State in removal of non-complying construction will be assessed against the owner of the utility facility.

#### SECTION 11. TRANSVERSE UTILITY FACILITY OCCUPANCY

11-1 Public utility facilities shall be granted permission to cross any state highway. Private utility facilities may be permitted to cross state highways. All such utility occupancy shall be subject to the provisions of Section 3 (Conditions for Occupancy of Right of Way) and other requirements as stated herein.

11-2 The number of crossings of such utility facilities shall be kept to a minimum. Consideration should be given to installing distribution facilities on each side of the highway to avoid numerous crossings and service connections in a relatively short distance. Where feasible, several facilities should cross in a single conduit or structure. To the extent practical, crossings should be approximately perpendicular to the highway alignment.

11-3 On both cased or uncased installations, particularly on crossings of the highway, consideration shall be given for placing spare conduit or duct to accommodate known or planned expansion of underground lines.

11-4 Freeways

- A. Overhead or underground utility facility installations will not be permitted within directional interchanges (intersecting freeway) unless highway related.
- B. At interchanges, where it is determined that utility facilities, either underground or overhead, cannot be reasonably placed and maintained from the intersecting road, the utility facilities shall be constructed around the interchange on private property to a point of crossing.
- C. Underground Installations shall be located and encased as provided in Sections 14, 15 and 16.
- D. Overhead Installations
  - 1. In general, poles, guys and other supporting structures and related ground utility facilities shall be located outside the freeway right of way. A single span shall be used to cross the freeway where the width of freeway right of way permits.
  - 2. Overhead utility facility occupancy of the right of way at freeway interchanges or locations of grade separations may be considered if in compliance with the following conditions:
    - (a) Access to the utility facility can be obtained from other than the freeway, its ramps or loops.
    - (b) Single pole construction shall be used with the number of poles kept to a minimum.
    - (c) Overhead lines will be constructed on tangent, parallel to the intersecting road, without guys or anchors placed in the areas between the ramps and main roadways of the freeway. Guy poles shall be located as near the freeway right of way line as possible.

- (d) Poles shall be located as close to the slope limits of the intersecting road as possible, but in no event shall they be closer than 30' to the pavement.
- (e) Poles shall be located as far from the main roadways and ramps of the freeway as possible; no poles being permitted within the median, nor closer than 30' from either edge of the ramp pavement; and where possible, no closer than 80' from the outer edge of the freeway pavement.
- (f) Where crossings of overhead (aerial) utility facilities are allowed, self-supporting poles or towers, double arming and insulators, and/or dead-end construction should be considered.

11-5 Planned Access Highway (Rural Type Roadway)

A. Underground Installations

- 1. Transverse underground utility facilities are to be located and encased as provided in Sections 14, 15, and 16.
- 2. Waterlines 2" or less inside diameter shall be copper, lead, ABS plastic ASTM 1527, or PVC pipe ASTM 1785, or equal and need not be encased.

B. Overhead Installations

- 1. Overhead utility facilities are to be located with poles, guys or other supporting structures and related ground mounted facilities as near as possible to the right of way line, but in no event shall they be placed within 30' of the pavement or within the roadway slope limits, whichever is the greater, right of way widths permitting.
- 2. Where crossings of overhead (aerial) utility facilities are allowed, self-supporting poles or towers, double arming and insulators, and/or dead-end construction should be considered.

11-6 Planned Access Highway (Urban Type Roadway)

- A. Single poles for overhead lines may be located within the right of way as far behind the curb line as possible and where feasible behind sidewalks, consistent with the land use adjacent to the right of way line.

- B. In general, ground anchors or stub poles should not be placed between a pole and the pavement.

## SECTION 12. LONGITUDINAL UTILITY FACILITY OCCUPANCY

12-1 Where allowed, longitudinal installations should be located on uniform alignment as near as practicable to the right of way line so as to provide a safe environment for traffic operation and preserve space for future highway improvements or other utility installations.

- 12-2 Freeway - Longitudinal utility facility occupancy involving freeways will not be permitted except for those underground utility facilities required to service highway related facilities.

### 12-3 Planned Access Highway (Rural Type Roadway)

- A. Proposed overhead utility facilities to be accommodated longitudinally along the highway are to be located as near as possible to the right of way line but in no event shall they be placed within 30' of the pavement, or within the roadway slope limits, whichever is greater, right of way width permitting.
- B. Underground longitudinal utility facilities are to be placed as near the right of way line as possible. A new facility shall be placed no nearer the roadway than the slope limits, right of way width permitting, except at locations where this is not acceptable, such as deep ravines or ditches. The decision as to what is acceptable shall be determined by the Engineer.
- C. With the exception of natural gas distribution systems, the carriers of transmittants which are flamable, corrosive, expansive or unstable, particularly if carried at high pressure, may not be placed longitudinally with the highway within the right of way limits.

### 12-4 Planned Access Highway (Urban Type Roadway)

- A. Longitudinal occupancy for proposed utility facilities is to be as near the highway right of way line as possible and generally not within the traveled way.

- B. In general, utility facilities will not be permitted in the median except for underground transverse crossings. Consideration may be given in special cases.

### SECTION 13. VERTICAL OVERHEAD CLEARANCE

The vertical clearance for overhead utility facilities above all highways and the lateral and vertical clearances from bridges, shall conform with the National Electrical Safety Code, except where greater clearances are required by State law, regulation or policy. In no event shall such vertical clearance be less than 20' above the pavement, except for service connections where the minimum vertical clearance shall be 18' above the pavement.

### SECTION 14. UNDERGROUND DEPTH REQUIREMENTS

#### 14-1 Measurement - The bury is measured as follows:

- A. From the ultimate pavement edge except that on a curve, is measured to the lowest pavement edge.
- B. When there are curbs and gutters, from the gutter flow line, excluding the local depressions at inlets.
- C. The top of curb where installation is to be behind the curb.

#### 14-2 Minimum Bury

- A. The minimum bury under a roadway shall be 48" or such greater depth as may be required to clear the pavement structure. The minimum bury in other portions of the right of way shall be no less than 36" below finish elevations with the exception of electrical cable where the minimum bury shall be 48" within the right of way. In critical situations where the necessary bury cannot be obtained, other protective measures may be approved.
- B. In urban sections where the necessary bury cannot be obtained, a lesser depth requirement may be considered.



## SECTION 15. LOCATION OF APPURTENANCES

15-1 Freeways - Unless otherwise provided, all appurtenances shall be located outside the right-of-way.

15-2 Planned Access Highway (Rural Type) - In general, all appurtenances shall be located at or as near the right-of-way line as possible.

15-3 Planned Access Highway (Urban Type) - In general, appurtenances should be located outside the pavement as near the right of way line as possible. Manholes for existing facilities may be incorporated in the pavement where it is not practicable to relocate the existing utility facility.

## SECTION 16. ENCASEMENT

16-1 An encasement shall be an oversized load-bearing casing, conduit duct or gallery through which a carrier, cable, or pipe is inserted in order to protect the roadway from damage and to provide for repair, removal or replacement of the utility facility without interference to highway traffic.

- A. Natural gas pipelines may be permitted to cross highway right of way utilizing a casing size carrier pipe to replace the casing required in this section. Casing size carrier pipes must be designed in conformance with all carrier and casing criteria set forth herein and should employ a higher safety factor in design, construction and testing than would normally be required for cased construction. (In case of pipeline failure a new carrier will be placed within the old carrier without disturbing the protected right of way.)
- B. Communication cables may be permitted to be placed unencased provided a proper casing is installed alongside the facility when installed.
- C. Electrical cables shall be encased with rigid steel or concrete conduit.

16-2 In the design of an encasement, consideration shall be given to the type of soil, height of embankment, and economic conditions. Any pipe used as a casing under a highway shall meet culvert requirements with regard to strength and service life.

16-3 Vents and drains - All encasements for carriers are to be designed and constructed with adequate vents and/or drains.

16-4 Size of Encasement

- A. For Pipelines - The minimum diameter casing shall be at least two nominal pipe sizes larger than the nominal size of the facility being encased, but in no case shall the casing be less than 2" greater than the outside diameter of the facility being encased. Special consideration should be given to larger clearance where required for unusual conditions, such as where settlement may be expected.
- B. For Cables - The conduit or duct shall be large enough to allow easy passage of the encased cable.

16-5 Length of Encasement

A. Freeways

- 1. Longitudinal utility facilities may not be placed within the right-of-way of a freeway except for those required to service highway related facilities.
- 2. Transverse Underground Utility Facilities
  - (a) Transverse underground utility facilities are to be encased from right of way line to right of way line, except that consideration may be given to partial encasement under the following circumstances:
    - (1) A deepcut or depressed section.
    - (2) In an area of excessively wide right of way.
    - (3) Interchange areas.
  - (b) In no case shall an encasement extend less than 30' outside the roadway or 6' beyond the slope limits whichever is greater, right of way width permitting.
  - (c) An underground utility facility shall be entirely encased through any area which has access available only from a freeway, its ramps or loops.

B. Planned Access Highway (Rural Type Roadway)

1. Generally, longitudinal utility facilities will not require encasement except for reasons of public safety and protection of the highway.
2. All transverse electrical cables, pressure sewer lines, water lines, and carriers of transmittances which are flammable, corrosive, expansive or unstable are to be encased with the exception of low pressure natural gas service connections 2" or less in diameter and water lines 2" or less in diameter. The encasement shall extend at least 6' beyond the slope limits. All other underground utility facilities are not required to be encased except for reasons of public safety and protection of the highway; however, the roadway may not be disturbed for maintenance of underground utility facilities.

C. Planned Access Highway (Urban Type Roadway) - Encasement of utility facilities will be required in compliance with applicable city codes. In the absence of a city code, the applicable Iowa State Commerce Commission rules and regulations and all other applicable laws, regulations and codes shall apply. It is the intent of this policy to not establish additional rules and regulations concerning encasement on this type highway.

SECTION 17. UTILITY FACILITY ATTACHMENTS TO BRIDGES

17-1 Proposals for placing any utility facility on or near bridges, whether existing or planned, or whether on rural or urban roadways, must be approved by the Iowa State Highway Commission, prior to the issuance of a permit. The application shall include a detailed sketch showing method of attachment and weights of attachment.

Where a pipeline attachment to a bridge is to be cased, the casing shall be effectively open or vented at each end to prevent possible build up of pressure and to detect leakage or gases or fluids.

Where a casing is not provided for a pipeline attachment to a bridge, additional protective measures shall be taken such as the use of extra strength pipe for the carrier.

Communication and electric power line attachment shall be suitably insulated, grounded or preferably carried in protective conduit or pipe from the point of exit from the ground to re-entry. Preferably the cable should be carried to a manhole located beyond the backwall of the structure. Carrier pipe and casing pipe shall be suitably insulated from electric power line attachments.

- A. Water Mains - Water mains and steam lines belonging to a municipality or a private company serving the municipality may, if the Commission considers it desirable, be attached to the bridge structure.
- B. Telephone Lines and Cables - Telephone open wire lines, cables, conduits, and multiple cell conduits may be allowed to be attached to bridges. The fee for such attachment shall be a permit fee of \$50 plus 15¢ per pound weight per foot of utility facility for each foot of the bridge length.  
$$\$50.00 + (\$0.15 \times \text{weight of attachment in pounds per foot} \times \text{length of bridge in feet}) = \text{fee}.$$
- C. Power Lines - Power lines may be allowed to be attached to a bridge structure. The fee for such attachment shall be the same as for telephone lines in B above.
- D. No pipeline will be attached to a bridge structure except as allowed in Section 17-1A and 17-1E.
- E. Natural Gas Lines
  - 1. Gas pipe lines in a natural gas distribution system may be attached to a bridge structure longer than 200' under the following conditions:
    - (a) That a utility facility installation below ground level across the bridge opening is not feasible.
    - (b) That shut-off valves are placed within 300' of each end of the bridge.
    - (c) That a lump sum payment is made to the Highway Commission as compensation for attaching gas pipe lines to bridges consisting of a \$50 permit fee plus the following:

2"	gas main at \$0.75 per foot length of bridge
3"	gas main at \$1.50 per foot length of bridge
4"	gas main at \$2.25 per foot length of bridge
5"	gas main at \$3.00 per foot length of bridge
6"	gas main at \$4.20 per foot length of bridge
7"	gas main at \$6.45 per foot length of bridge
8"	gas main at \$7.75 per foot length of bridge

For other sizes than given above the rate shall be based on 15¢ per pound foot of pipe for each foot of bridge length.

2. The owner of the utility facility shall provide an indemnity bond to be executed either by itself or by a responsible bonding company, at the Highway Commission's option, in an amount equal to twice the replacement cost of the bridge. The indemnitor under such bond shall, in the event of damage to the bridge from the explosion of or fire from the gas pipeline attached to such bridge resulting from any cause whatsoever, except the sole negligence of the employees of the Highway Commission, indemnify the Highway Commission against all loss or damage to it therefrom, including the expense of repairing or replacing the bridge and the cost of alternate highway facilities for traffic during the period of such bridge repair or replacement. Such indemnity bond shall be kept in full force and effect as long as the gas pipeline is attached to such highway bridge. The amount of bond may be reviewed by the Highway Commission and adjustments required to reflect changes in construction costs.
3. The method of attachment and the replacement of the pipeline must have the approval of the Highway Commission, and the applicant shall agree to all applicable conditions and stipulations.

F. Utility Facilities on Proposed New Structures

1. Owners of utility facilities proposing to place utility facilities on structures that are in the planning stage will pay in advance the additional cost occasioned by the increased design time, inspection, strength of the bridge, and for the attachment weight in accordance with the fees set out above for natural gas pipelines.
2. Paragraphs 2 and 3 of 17-E shall also apply to natural gas lines on proposed new construction.

- G. A permit allowing a utility facility owner the privilege to attach its facilities to a highway structure does not constitute any permanent right for such attachment. The removal, remodeling or relocation of the attachment shall be accomplished by the utility facility owner promptly and at no cost to the State, when so required by the State.
- H. Unless specifically authorized by the Iowa State Highway Commission, maintenance of the attachment will not be performed from the roadway.

#### SECTION 18. PRIVATELY OWNED UTILITY FACILITIES

18-1 Privately owned utility facilities shall be accommodated in accordance with the provisions of this policy with the following possible exceptions.

- A. The bury requirement of Section 14 may be waived for tile lines and sewer lines where necessary, and at the discretion of the Engineer.
- B. The original placement and removal of signs required in Section 8 may be accomplished by the Iowa State Highway Commission personnel, at the discretion of the Engineer.

